

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A substrate processing apparatus comprising:
 - a processing vessel forming a processing space, a sidewall of the processing vessel having a rectangular section;
 - a rotatable supporting table for supporting a substrate to be processed in the processing space;
 - a rotation mechanism of the supporting table;
 - a nitrogen radical generation unit, provided at an end portion a first plane of the sidewall of the processing vessel at a first side of the supporting table, for forming nitrogen radicals by a high frequency plasma and supplying the nitrogen radicals into the processing space, the nitrogen radicals flowing along a surface to be processed of the substrate to be processed from the first side to a second side, the second side facing the first side with the substrate to be processed placed therebetween;
 - an oxygen radical generation unit, provided at the end portion the first plane of the sidewall at the first side, for forming oxygen radicals by a high frequency plasma and supplying the oxygen radicals into the processing space, the oxygen radicals flowing along the surface to be processed of the substrate to be processed from the first side to the second side; and
 - a gas exhaust path, provided at an end portion at the second side, to exhaust the processing space,
wherein the nitrogen radicals and the oxygen radicals flow towards the gas exhaust path from the nitrogen radical generation unit and the oxygen radical generation unit while forming a nitrogen radical flow path and an oxygen radical flow path along the surface of the substrate to be processed, respectively.

2. (Original) The substrate processing apparatus of claim 1, wherein the nitrogen radical generation unit includes a first gas passageway and a first high frequency plasma generation unit formed at a part of the first gas passageway to excite a nitrogen gas passing therethrough into a plasma; and the oxygen radical generation unit includes a second gas passageway and a second high frequency plasma generation unit formed at a part of the second gas passageway to excite an oxygen gas passing therethrough into a plasma,
wherein the first and the second gas passageway are in communication with the processing space.

3. (Original) The substrate processing apparatus of claim 1, wherein the nitrogen radical flow path and the oxygen radical flow path are substantially parallel to each other.

4. (Canceled).

5. (Canceled).

6. (Currently Amended) The substrate processing apparatus of claim 1, wherein a center of the nitrogen radical flow path intersects with that of the oxygen radical flow path ~~substantially at a center of the substrate to be processed in the processing vessel.~~

7. (Original) The substrate processing apparatus of claim 1, wherein there is provided a flow adjusting plate interfering with the nitrogen radical flow path to change a direction thereof.

8. (Original) The substrate processing apparatus of claim 1, wherein there is provided a flow adjusting plate interfering with the oxygen radical flow path to change a direction thereof.

9-30 (Canceled).

31. (New) The substrate processing apparatus of claim 3, wherein the nitrogen radical generation unit and the oxygen radical generation unit are installed adjacent to each other and are substantially in plane symmetry with respect to an adjacent surface between the nitrogen radical generation unit and the oxygen radical generation unit.

32. (New) The substrate processing apparatus of claim 1, wherein the nitrogen radicals and the oxygen radicals are introduced into the processing vessel substantially parallel to the surface of the substrate.

33. (New) A substrate processing apparatus comprising:
a processing vessel forming a processing space;
a rotatable supporting table for supporting a substrate to be processed in the processing space, the substrate having a surface to be processed;
a first radical generation unit, provided at a first sidewall portion of the processing vessel, for forming first radicals by a high frequency plasma and supplying the first radicals into the processing space;
a second radical generation unit, provided at the first sidewall portion of the processing vessel, for forming second radicals by a high frequency plasma and supplying the second radicals into the processing space; and

a gas exhaust port, provided at a second sidewall portion of the processing vessel, to exhaust the processing space, the second sidewall portion being disposed opposite to the first sidewall portion with the supporting table placed therebetween,

wherein the first and the second radical generation unit and the gas exhaust port are provided at the processing vessel, such that the first and the second radicals respectively flow from the first sidewall portion to the second sidewall portion along a first and a second flow path which are substantially parallel to the surface of the substrate mounted on the supporting table.

34. (New) The substrate processing apparatus of claim 33, wherein the first radical generation unit is a nitrogen radical generation unit and the second radical generation unit is a oxygen radical generation unit.

35. (New) The substrate processing apparatus of claim 34, wherein the nitrogen radical generation unit includes a first gas passageway and a first high frequency plasma generation unit formed at a part of the first gas passageway to excite a nitrogen gas passing therethrough into a plasma; and the oxygen radical generation unit includes a second gas passageway and a second high frequency plasma generation unit formed at a part of the second gas passageway to excite an oxygen gas passing therethrough into a plasma,

wherein the first and the second gas passageway are in communication with the processing space.

36. (New) The substrate processing apparatus of claim 33, wherein the first flow path and the second flow path are substantially parallel to each other.

37. (New) The substrate processing apparatus of claim 33, wherein the distance between a center of the first flow path and that of the substrate mounted on the supporting table is 40 mm or less.

38. (New) The substrate processing apparatus of claim 33, wherein the distance between a center of the second flow path and that of the substrate mounted on the supporting table is 40 mm or less.

39. (New) The substrate processing apparatus of claim 33, wherein a center of the first flow path intersects with that of the second flow path substantially at a center of the substrate mounted on the supporting table.

40. (New) The substrate processing apparatus of claim 33, wherein there is provided a flow adjusting plate interfering with the first flow path to change a flow direction thereof, the first radicals being introduced into the processing space along the first flow path whose flow direction has been changed.

41. (New) The substrate processing apparatus of claim 33, wherein there is provided a flow adjusting plate interfering with the first flow path to supply the first radicals towards a center of the substrate mounted on the supporting table.

42. (New) The substrate processing apparatus of claim 33, wherein there is provided a flow adjusting plate interfering with the second flow path to change a flow direction thereof, the second radicals being introduced into the processing space along the second flow path whose flow direction has been changed.

43. (New) The substrate processing apparatus of claim 33, wherein there is provided a flow adjusting plate interfering with the second flow path to supply the second radicals towards a center of the substrate mounted on the supporting table.

44. (New) The substrate processing apparatus of claim 33, wherein the first radical generation unit and the second radical generation unit are installed to the processing vessel adjacent to each other in a substantially plane symmetry.

45. (New) The substrate processing apparatus of claim 33, wherein the first radicals and the second radicals are introduced into the processing vessel substantially parallel to the surface of the substrate.